APPENDIX:

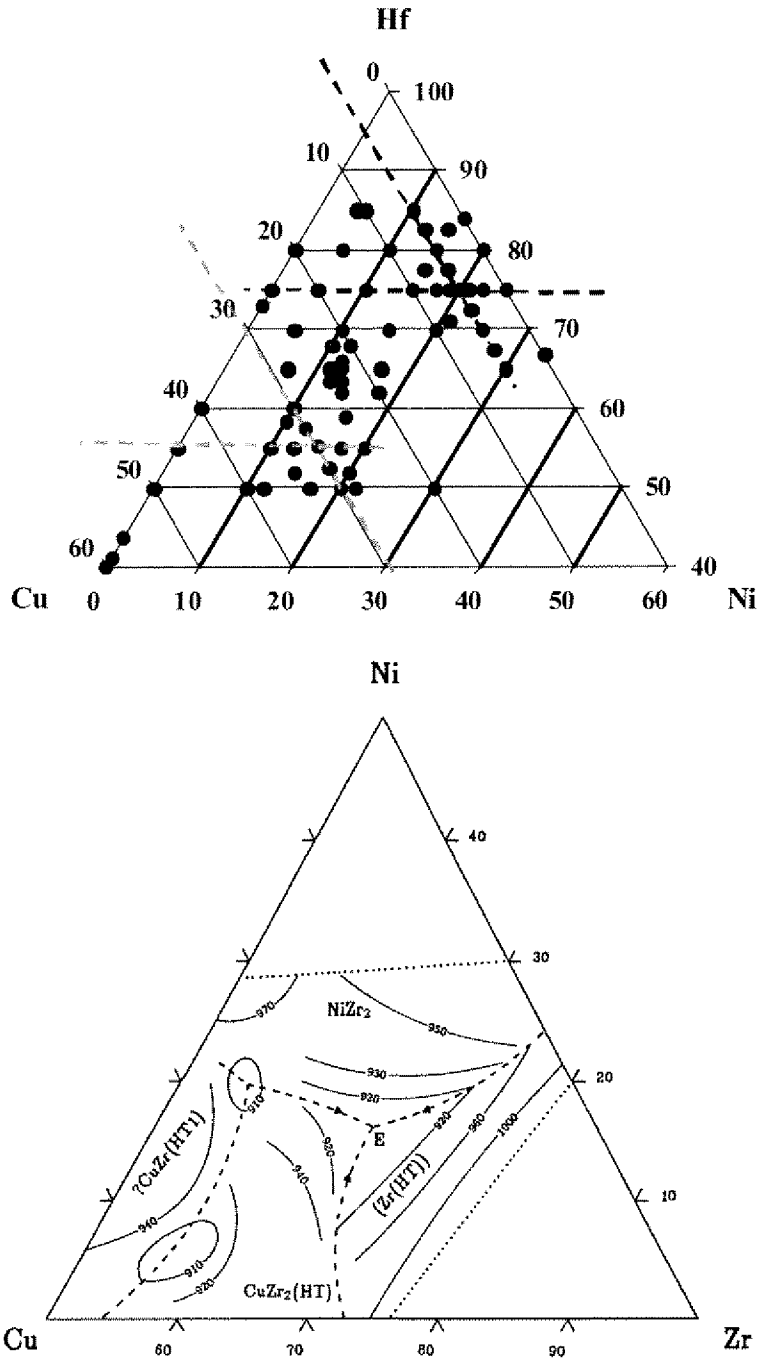


Figure 1. Locus of all experimentally fabricated alloys in Hf-Cu-Ni ternary composition space and the location of the eutectic (E) in the Zr-Cu-Ni system.

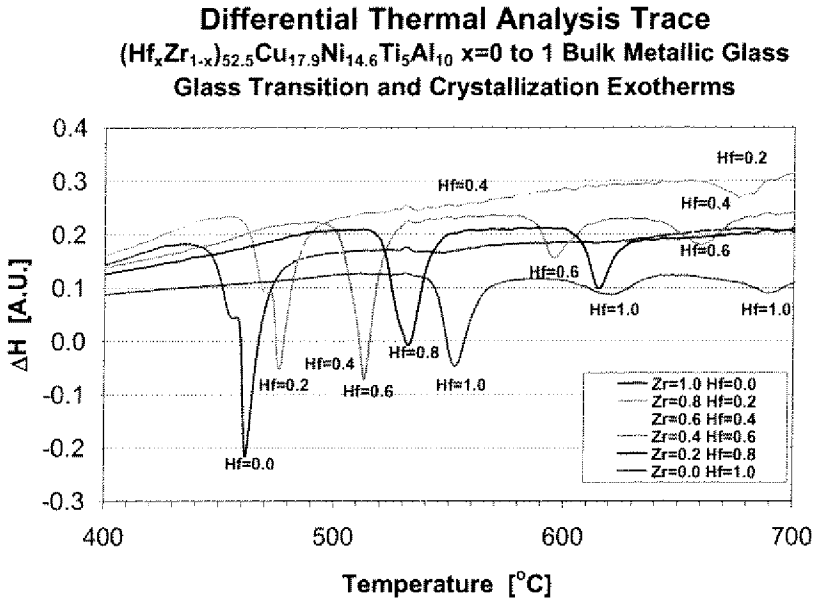


Figure 2. Crystallization events in the Hf-substituted Vitreloy 105 composition series, showing the increasing number of exotherms with decreasing Zr content.

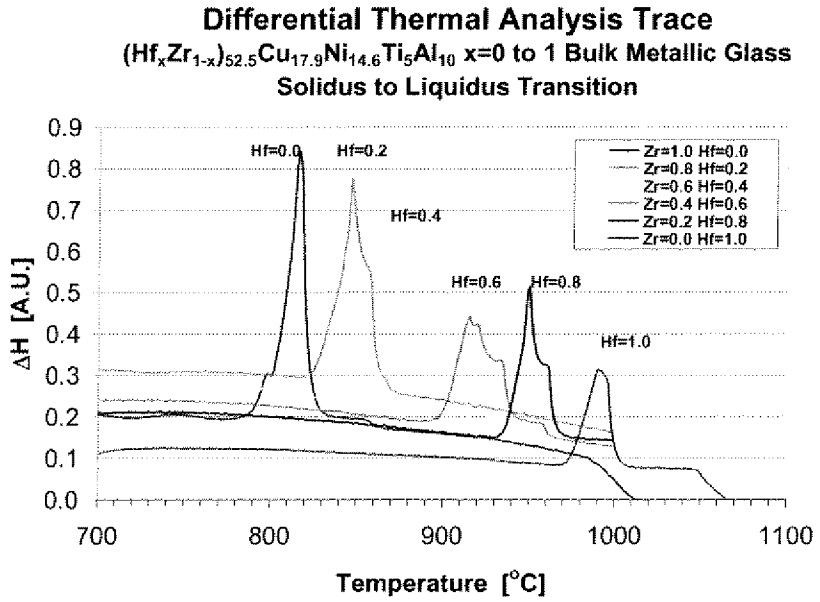
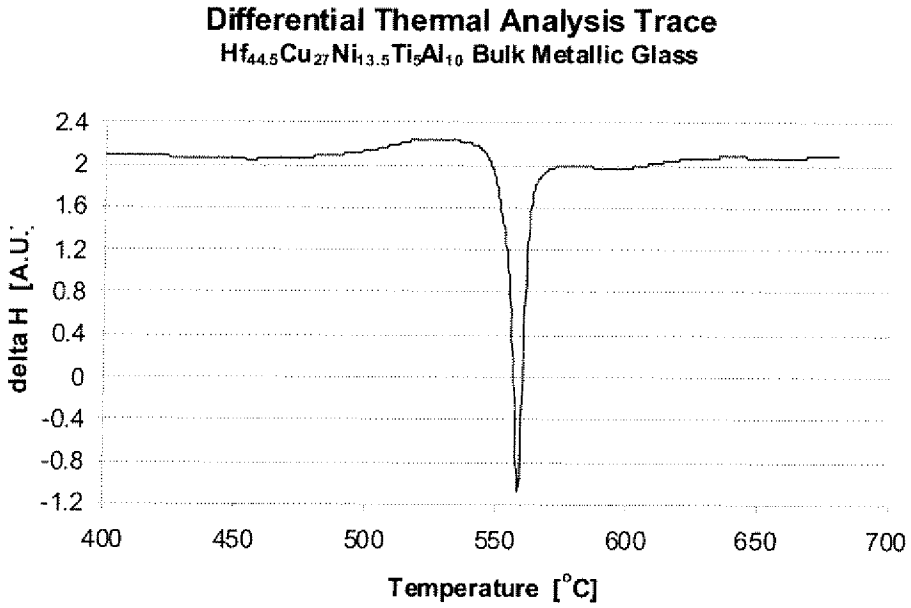


Figure 3. Solidus to liquidus transition in the Hf-substituted Vitreloy 105 composition series, showing the increasing differential melting of multiple crystalline species in each alloy; width of transition.

Table 1. Deviations from the ideal composition and their effect on Trg.

Ingot #	Rod #	Composition (atomic %)	Liquidus (oC)	Tg onset (oC)	Trg
20503-6		Hf47 Cu26 Ni13 Al10 Ti5	985		
	020503-6SC			483	0.601
21203		**Hf44.5 Cu27 Ni13.5 Al10 Ti5**	983		
	21203-4			499	**0.615**
21903-3		Hf46.75 Cu25.5 Ni12.75 Al10 Ti5	986		
			1024		
	21903-3-2			485	0.602
					0.584
21903-2		**Hf44.5 Cu27 Ni13.5 Al10 Ti5**	984		
	21903-2-1			494	**0.610**
42103-1		Hf49 Cu24 Ni12 Al10 Nb5	1042		
	42103-1-1			501	0.589
42103-2		**Hf44.5 Cu27 Ni13.5 Al10 Nb5**	1036		
	42103-2-1			507	**0.596**
61003-1		Hf44.5 Cu29 Ni11.5 Al10 Ti5	1024		
	61003-2-1			497	0.594
61003-1		Hf44.5 Cu25 Ni15.5 Al10 Ti5	987		
	61003-1-2			488	0.604
62003-1	62003-1-2	Hf46.5 Cu27 Ni11.5 Al10 Ti5	1005	(obscured)	
				481	0.590
62003-2	62003-2-1	Hf42.5 Cu27 Ni15.5 Al10 Ti5	1038		
			1040	(obscured)	
				513	0.599
62403-1	62403-1-1	Hf46.5 Cu25 Ni13.5 Al10 Ti5	987		
				501	0.614
				496	0.610
				498	0.612
62403-2	62403-2-1	Hf42.5 Cu29 Ni13.5 Al10 Ti5	1013	(obscured)	
				519	0.615
80103-2	80103-2-1	Hf39.5 Ti5 Nb5 Cu27 Ni13.5 Al10			
				No Tg	

(a)



(b)

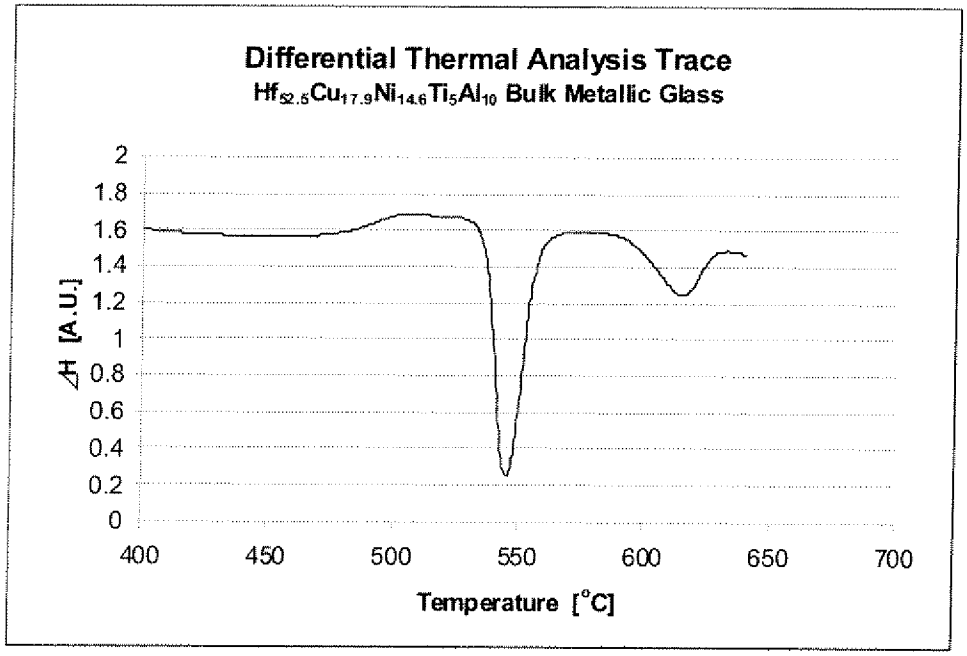
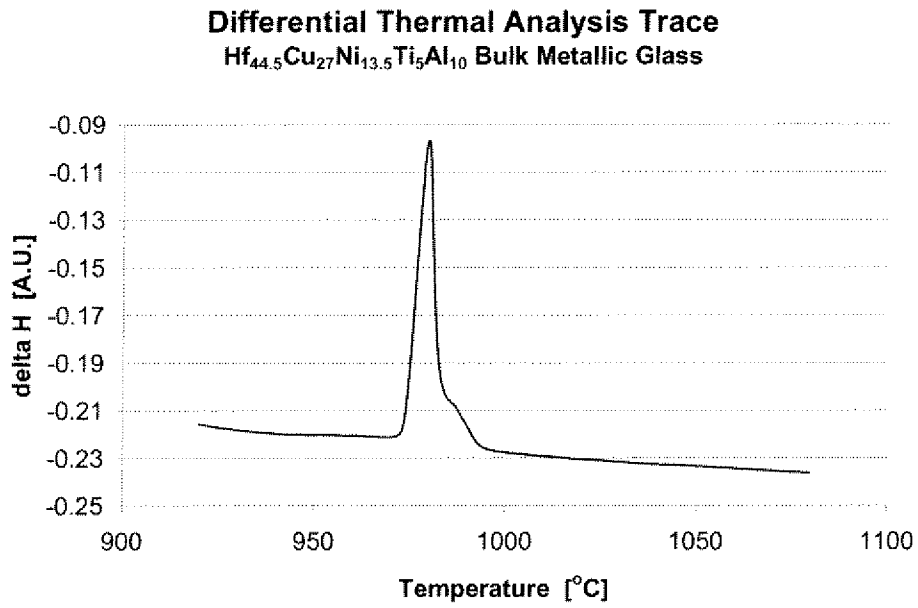


Figure 4. (a) crystallization event of the alloy claimed in the invention, showing a single exotherm. (b) crystallization events of the fully substituted Vitreloy 105 alloy, sahowing the first two exotherms. The third exotherm was not plotted for convenience.

(a)



(b)

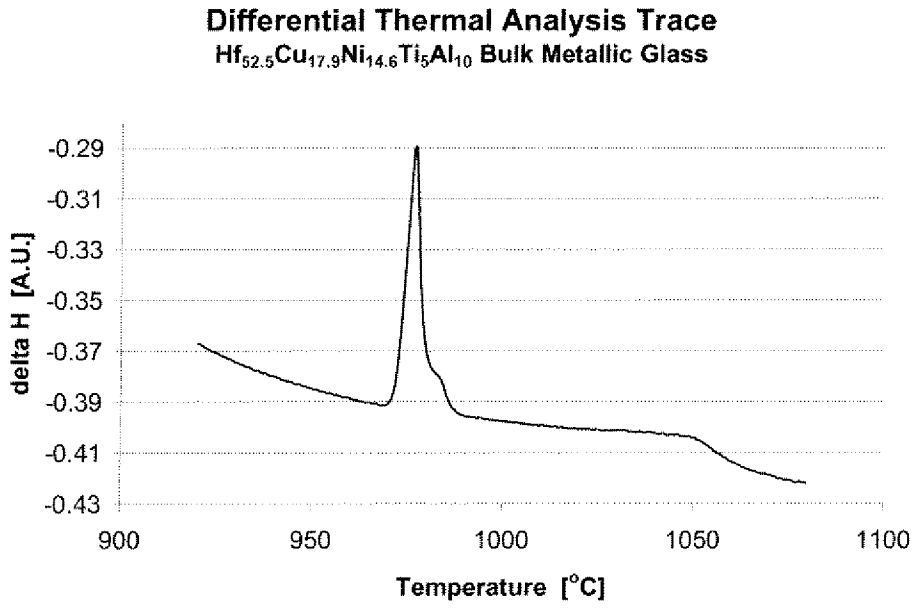


Figure 5. (a) solidus to liquidus transition of the alloy claimed in the invention, showing a narrow endotherm. (b) solidus to liquidus transition of the fully substituted Vitreloy 105 alloy, showing a significantly wider endotherm.